

CBCS SCHEME

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17AE/AS554

Fifth Semester B.E. Degree Examination, Jan./Feb.2021 Aircraft Electrical System & Instrumentation

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. State the principle of flight control and explain the need for such a control in aircraft. Also explain the primary and secondary controls with neat sketch. (12 Marks)
b. Explain about power assisted and power operated system. (08 Marks)

OR

- 2 a. Explain fly by wire and digital fly by wire system. (08 Marks)
b. What are flight control linkage system? Explain with a line diagram about push pull control rod system and cable pulley system. (12 Marks)

Module-2

- 3 a. Write a short note on hydraulic fluid. (06 Marks)
b. List the advantages and disadvantages of hydraulic systems with its application in aircraft. (06 Marks)
c. With a neat sketch, explain briefly typical high pressure pneumatic system. (08 Marks)

OR

- 4 a. Explain a simple hydraulic system with a help of a flow chart, briefly explain about simplified B767 hydraulic system. (12 Marks)
b. What is landing gear? Explain briefly the different types of landing gear. (08 Marks)

Module-3

- 5 a. Explain the lubricating system component on gas turbine engines. (10 Marks)
b. With a typical example, explain fuel system for jet engines. (10 Marks)

OR

- 6 a. What is the purpose of an aircraft fuel system? With a neat sketch explain generalized fuel system. (10 Marks)
b. What are some of the factors that influence the choice of the starting system? (10 Marks)

Module-4

- 7 a. Explain briefly with a neat sketch the common types of fire detection system used on aircraft. (14 Marks)
b. Explain the vapour cooling system, with a neat sketch. (06 Marks)

OR

- 8 a. Explain air cycle cooling system, with neat sketch. (08 Marks)
b. Write a short note on:
(i) Anti icing system.
(ii) De icing system.
(iii) Requirement of fire protection system in aircraft. (12 Marks)

Module-5

- 9 a. What are the limitations of a free gyroscope? Explain. (05 Marks)
- b. Define gyroscope. Mention its three degrees of freedom. Explain the term of gimhals system of free or space gyroscope – gyroscopic inertia or rigidity and precision – angular momentum. (12 Marks)
- c. Explain two properties of an actual gyroscope. (03 Marks)

OR

- 10 a. Write short note on the following with relevant diagrams:
- (i) Turn and Bank Indicator
 - (ii) Pitot static system.
 - (iii) Altimeter.
- (15 Marks)
- b. What is tachometer? With neat sketch explain mechanical tachometer. (05 Marks)

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